West Point Treatment Plant Project Update October 15, 2009

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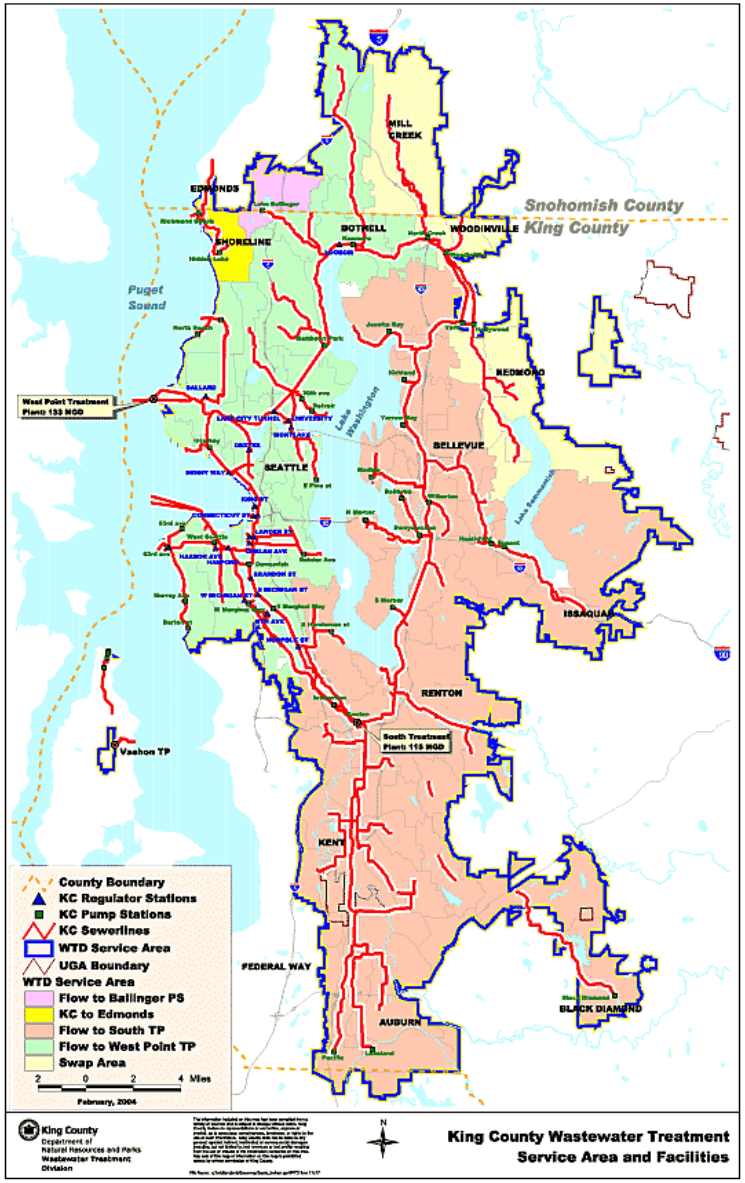
King County Wastewater Treatment Division

West Point Treatment Plant History

- **1959 – King County voters create Metro to provide wastewater treatment**
- **1966- Construction of West Point primary treatment completed**
- **1991-1996 Plant upgraded to provide secondary treatment**
- **Today- West Point continues to provide high quality treatment of wastewater from the area's homes and businesses.**

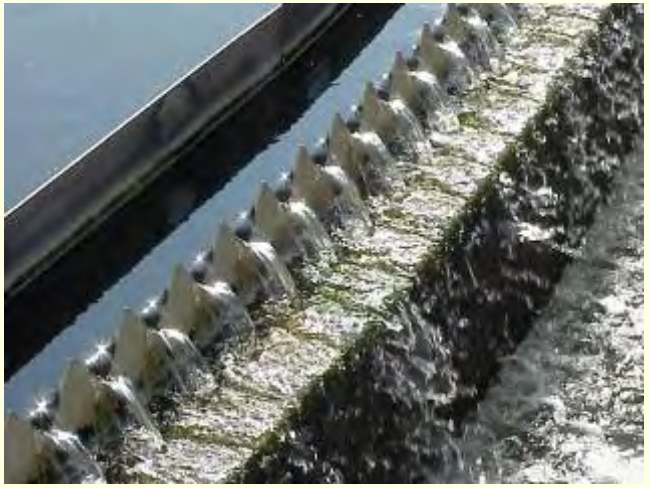
West Point Treatment Plant Service Area

- **Residents served:**
  1.4 million daily
- **Service area:**
  1088 km^2
- **Public investment:**
  $3.6 billion to date



How Wastewater Treatment Works

- **Wastewater and stormwater** from the combined service area **are conveyed** to WPTP
- **Preliminary treatment** includes screening debris and removing grit
- **Primary treatment** includes settlement of sediments that become primary sludge
- **Secondary treatment** involves biological treatment and clarification
- The **disinfection** process kills bacteria and pathogens before effluent is discharged through the outfall into Puget Sound



West Point Treatment Plant Today

- Processes around 100 mgd wastewater from homes and businesses in the area
- Services the combined sewer system area
- Creates resources from wastewater:
  - Reuses up to 250 million gallons of reclaimed water in industrial processes per year
  - Produces about 50,000 wet tons of biosolids per year for land-based application
  - Produces methane gas used to run engines and boilers
- NPDES permit renewed by DOE in 2009
- National award given to WPTP in 2008 for 7 consecutive years of permit compliance

Why WTD Plans Projects for WPTP

- Meet new regulatory compliance requirements for
  - Effluent quality
  - Disinfection
  - Solids handling
- Upgrade facilities to meet current code
- Develop more opportunities to create resources from wastewater

Upcoming Projects

- Waste-to-Energy
- Chlorine Conversion
- Screenings Improvement
- Digestion System Improvements
- Office Annex

Waste-to-Energy

- **Digester gas (methane) is currently used to fuel raw sewage pumps and power some plant equipment.**
- **Excess digester gas will be used to create electricity and recover heat.**
- **WPTP produced electricity from digester gas for 23 years before being decommissioned in 2007.**

The new cogeneration system will produce about 23,000 megawatts of electricity each year, equivalent to what can power more than 2,300 homes.

Converting Waste Gas to Energy

- Creates energy from wastewater
- Reduces the county's need to purchase commercial electrical power
- Reduces our operating costs
- Contributes to stable monthly rates for our customers
- Utilizes two previously purchased 2.3-megawatt Caterpillar 3612 generators
- The generators will be installed in an existing building

Waste-to-Energy- Project Schedule

- Design finalized May 2009.
- Bids sent to construction contractors September 2009
- Construction to begin in early 2010
- Completion is expected in 2012

WPTP Chlorine Gas Conversion Project

- Disinfection is required of the final effluent in order to eliminate pathogens and protect public health.
- Chlorine is the most effective, cost-efficient disinfection and the existing system uses chlorine gas for disinfection
- West Point has experienced short-term disinfection failures, which resulted in a Dept. of Ecology compliance requirement to investigate alternative non-gas chlorine systems
- WTD will convert to sodium hypochlorite, a liquid form of chlorine similar to household bleach

Chlorine Gas Conversion Project Schedule

- A small backup disinfection system was installed in 2009 to prevent failures
- Hypochlorite project is in design
- Construction to be carried out in 2010
- The chlorine gas system will be decommissioned after the new system is fully operational

Screenings Project

- Dept. of Ecology requires 3/8” screening in the state regulation
- WPTP existing screens are 5/8”
- The existing screenings building is not sufficient to safely accommodate upgraded screenings operations.

Solids that enter the treatment plant are screened to maintain plant processes and biosolids quality. These materials, largely plastics, were removed during cleaning of sludge digesters.

Project Status

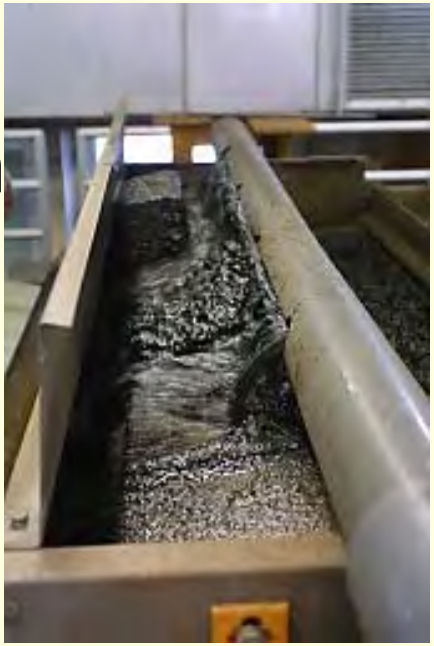
- The project team is currently developing alternatives for a screening facility.
- A team of design engineers, operators, electricians, environmental planners, and permitting staff are coordinating to design and permit a facility that
  - Meets compliance requirements for solids screening
  - Can be operated and maintained efficiently and safely

Screenings Project Schedule

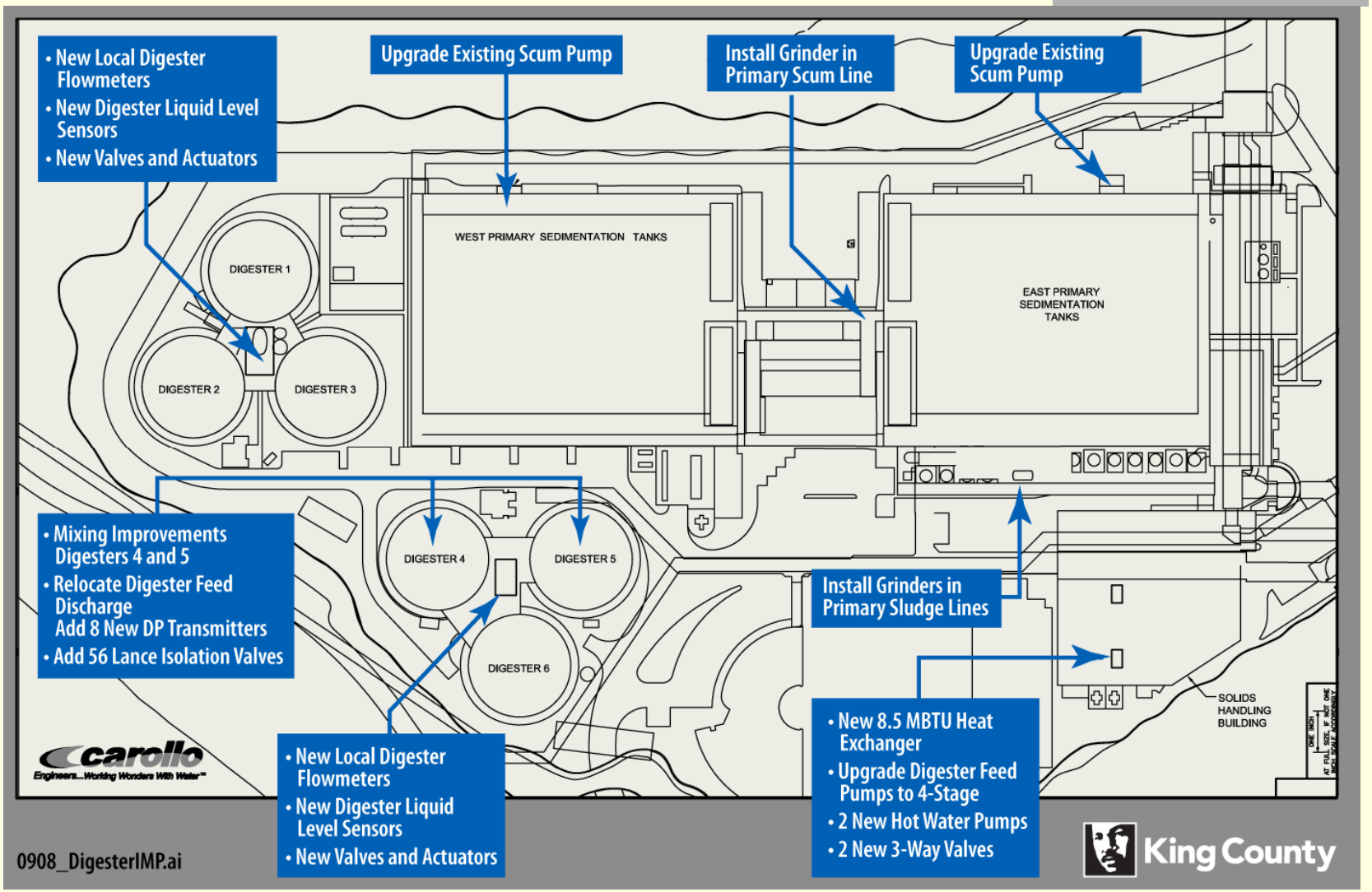
- Alternative Selected: September 2010
- Predesign Complete: October 2011
- Final Design Complete: December 2012
- Construction Complete: April 2015

Digestion System Improvements

- The anaerobic digesters break down organic solids and scum to produce methane gas and create nutrient-rich biosolids that are used as a soil amendment.
- West Point operates 6 digesters with in the limited treatment plant footprint.
- It is necessary to get peak performance out of all the existing digesters.



Digestion System Improvements



Digester Project and Schedule

- Equipment and controls upgrades will be incorporated in the existing facility
- Final design will be completed in 2010
- Project is expected to be implemented in 2012 and 2013

Office Annex

- Staff were housed in left-over construction trailers that do not meet code requirements
- The office annex will provide code-compliant space for current plant staff and existing trailers will be removed
- A permanent modular building will be placed adjacent to the administration building
- It will not exceed height limits established in the 1991 settlement agreement
- Complete design and permitting - May 2011
- Construction - late 2011

Public Outreach- What You Can Expect

- **WTD will keep the community updated as projects progress**
  - **Newsletters**
  - **Web**
  - **Public meetings**
  - **Fliers at Discovery Park, Community Center, and other locations**
- **Construction activities will be confined to the treatment plant site; notification and information about construction will be provided**
- **Contact Monica Van der Vieren at 206-263-7301 or monica.vandervieren@kingcounty.gov with questions, concerns, and comments.**

What Everyone Can Do at Home

It is more cost-efficient and effective to control wastewater quality at the beginning of the pipe.

- Visit the Web or take a tour of West Point Treatment Plant and learn about the process and what you can do to protect wastewater quality
- Find out how you can help manage stormwater volumes and quality of stormwater entering the sewer system- and the Sound
- Know your sewer and storm systems, and who to call if there's a problem

Resources

- Information about WTD, West Point Treatment Plant, and tips for managing input into sewers: http://www.kingcounty.gov/environment/wtd.aspx
- Information about Seattle Public Utilities' Rainwise Program for managing stormwater:

  http://www.seattle.gov/util/About_SPU
- Information about Puget Sound water quality, NPDES permits, and other water quality related links:

  http://www.ecy.wa.gov/
- Contact WTD if you would like hard copy information mailed to you!